D20, D50, D60 & D80 Series

# Installation, Operation & Maintenance Manual





Dean, a member of the Commercial Food Equipment Service Association, recommends using CFESA Certified Technicians.

24-Hour Service Hotline 1-800-551-8633

Price: \$8.00

819-5698 10-00

# Please read all sections of this manual and retain for future reference.

This product has been certified as commercial cooking equipment and MUST be installed by professional personnel as specified. Installation, maintenance and repairs should be performed by your DEAN FACTORY AUTHORIZED SERVICE CENTER.

#### **A** CAUTION

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other cooking appliance.

## **A** CAUTION

Instructions explaining procedures to be followed MUST be posted in a prominent location in the event the operator detects a gas leak. This information can be obtained from the local gas company or gas supplier.

## **MARNING**

Improper installation, adjustment, alteration, service or maintenance can cause <u>property</u> damage, injury or death. Read the installation, operating and maintenance instructions thoroughly before installing or servicing this equipment.

## **MARNING**

Safe and satisfactory operation of your equipment depends on proper installation. Installation MUST conform with local codes, or in absence of local codes, with the National Fuel Gas Code, ANSI Z223.1; The Natural Gas Installation Code, CAN/CGA-B149.1; or The Propane Installation Code, CAN/CGA-B149.2.

## **A** CAUTION

The crumb tray in fryers equipped with a filter system must be emptied into a fireproof container at the end of frying operations each day. Some food particles can spontaneously combust if left soaking in certain shortening material. Additional information can be obtained in the filtration manual included with the system.

# **MARNING**

SAFE AND SATISFACTORY OPERATION OF YOUR EQUIPMENT DEPENDS ON ITS PROPER INSTALLATION. INSTALLATION MUST CONFORM TO LOCAL CODES, OR IN THE ABSENCE OF LOCAL CODES, WITH THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE, N.F.P.A. 70.



#### **Decathlon Series Gas Fryers**

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# DECATHLON SERIES GAS FRYERS CHAPTER 1: INTRODUCTION

#### 1.1 After Purchase:

In order to improve service, have the following chart filled in by the Dean Authorized Service Technician who installed this equipment.

Authorized Service Technician/FASC	
Address	
Telephone/Fax	
Model Number	
Serial Number	
Gas Type	

#### 1.2 Ordering Parts:

Customers may order parts directly from their local factory authorized service center. For this address and phone number, contact your factory authorized service center or call the Dean Industries Service Hotline phone number, 1-800-551-8633.

To speed up your order, provide the model number, serial number, gas type, part needed, item part number (if known), and quantity needed.

#### 1.3 Service Information:

Call the Dean Service Hotline, 1-800-551-8633, for the location of your nearest factory authorized service center. To assist you more efficiently, always provide the service technician with the model number, gas type, serial number, and the nature of the problem.

## 1.4 Safety Information

Before attempting to operate your unit, read the instructions in this manual thoroughly.

Throughout this manual, you will find notations enclosed in double-bordered boxes similar to the ones below.

CAUTION boxes contain information about actions or conditions that may cause or result in a malfunction of your system.

# CAUTION Example of a CAUTION box.

**WARNING** boxes contain information about actions or conditions that *may cause or result in damage to your system*, and which may cause your system to malfunction.

# **WARNING** Example of a WARNING box.

**DANGER** boxes contain information about actions or conditions that *may cause or result in injury to personnel*, and which may cause damage to your system and/or cause your system to malfunction.

## **A** DANGER

Hot cooking oil causes severe burns. Never attempt to move a fryer containing hot cooking oil or to transfer hot cooking oil from one container to another.

# DECATHLON SERIES GAS FRYERS CHAPTER 2: IMPORTANT INFORMATION

#### 2.1 Product Description

The Dean Industries Decathlon Fryers are energy-efficient, tube-style, gas-fired units, design-certified by the International Approval Services (AGA/CGA), National Sanitation Foundation (NSF), and manufactured to their basic performance and application specifications.

All units are shipped completely assembled with accessories packed inside the fryer vessel. All units are adjusted, tested and inspected at the factory before shipment. Sizes, weights and input rates of all models are listed in this manual.

**NOTE:** The on-site supervisor is responsible for ensuring that operators are made aware of inherent dangers of operating a deep fat fryer, particularly aspects of oil filtration, draining, and cleaning of the fryer.

#### 2.2 Principles of Operation

The incoming gas flows through orifices and is mixed with air in the burners to create the correct ratio for proper combustion. The mixture is ignited at the front end of each heat tube by the pilot light. Internal diffusers slow the flame as it goes through the burner tube. This slower and more turbulent flame gives much better heat transfer to the walls of the tubes, thereby heating the oil better.

## 2.3 Rating Plate

This is attached to the inside right-hand corner of the front door panel. Information provided includes the model and serial number of the fryer, BTU/hr input of the burners, outlet gas pressure in inches WC and whether the unit has natural or propane gas orifices.



Fryers MUST be connected ONLY to the gas type identified on the attached rating plate.

#### 2.4 Pre-Installation

- A. **General**: Only a licensed gas fitter should install any gas-fired equipment.
  - 1. A manual gas shut-off valve must be installed in the gas supply line ahead of the fryers for safety and ease of future service.

- 2. The Dean Decathlon gas fryers require 120 VAC 60 cycle or 230VAC single-phase 50-hertz (International/CE) electrical service and are equipped with a 16-3 SJT grounded flexible power cord for a direct connection to the power supply. Amperage draw for each unit depends on the accessories supplied with the unit. See detailed instructions packaged with the fryer.
- B. **Clearances**: The fryer area must be kept free and clear of all combustibles. This unit is design-certified for the following installations:
  - 1. Commercial installation only (not for household use).
  - 2. Non-combustible floor installation equipped with factory-supplied 6-inch (15-cm) adjustable legs or 5-inch (13-cm) casters;
  - 3. Combustible construction with a minimum clearance of 6-inches (15-cm) side and 6-inches (15-cm) rear, and equipped with factory-supplied 6-inch (15-cm) adjustable legs or 5-inch (13-cm) casters.

## **A** CAUTION

Local building codes usually prohibit a fryer with its open tank of hot oil from being installed beside an open flame of any type, whether a broiler or the open burner of a range.

#### C. Installation Standards:

1. U.S. installations must meet:

American National Standard Institute ANSI Z83.11 American Gas Association 8501 E. Pleasant Valley Road Cleveland, OH 44131

National Electrical Code ANSI/NFPA #70 American National Standard Institute 1430 Broadway New York, NY 10018

NFPA Standards #96 and #211 National Fire Protection Association 470 Atlantic Avenue Boston, MA 02110 2. Canadian installations must meet:

CAN 1-B149 Installation Codes Canadian Gas Association 55 Scarsdale Road Don Mills, ONT, M3B 2R3

Canadian Electric Code c22.1, part 1 Canadian Standards Association 178 Rexdale Blvd. Rexdale, ONT, M9W 1R3

3. <u>CE/EXPORT STANDARDS</u>: Fryer installation must conform with local codes, or in the absence of local codes, to the appropriate national or European Community (CE) standards.

#### 2.5 Air Supply and Ventilation

Keep the area around the fryer clear to prevent obstruction of combustion and ventilation airflow as well as for service and maintenance.

- A. Do not connect this fryer to an exhaust duct.
- B. Correct installation and adjustment will ensure adequate airflow to the fryer system.
- C. A commercial, heavy-duty fryer must vent its combustion wastes to the outside of the building. A deep-fat fryer must be installed under a powered exhaust hood, or an exhaust fan must be provided in the wall above the unit, as exhaust gas temperatures are approximately 800-1000°F (427-538°C). Check air movement during installation. Strong exhaust fans in the exhaust hood or in the overall air conditioning system can produce slight air drafts in the room.
- D. Do not place the fryer's flue outlet directly into the plenum of the hood, as it will affect the gas combustion of the fryer.
- E. <u>Never</u> use the interior of the fryer cabinet for storage or store items on shelving over or behind the fryer. Exhaust temperatures can exceed 425°C and may damage or melt items stored in or near the fryer.
- F. Adequate distance must be maintained from the flue outlet of the fryer(s) to the lower edge of the filter bank. Per NFPA Standards No. 96, a minimum of 18-inches (45-cm) should be maintained between the flue(s) and the lower edge of the exhaust hood filter.
- G. Filters and drip troughs should be part of any industrial hood, but consult local codes before constructing and installing any hood. The duct system, the exhaust hood and the filter bank must be cleaned on a regular basis and kept free of grease.

## 2.6 Equipment Installed at High Altitudes:

- A. The fryer input rating (BTU/hr) is for elevations up to 2,000 feet (610-m). For elevations above 2,000 feet (610-m), the rating should be reduced four percent (4) for each additional 1,000 feet (305-m) above sea level.
- B. The correct orifices are installed at the factory if operating altitude is known at time of the customer's order.

## 2.7 Receiving and Unpacking Equipment:

- A. Check that the container is upright. Use an outward prying motion no hammering to remove the carton. Unpack the fryer carefully and remove all accessories from the carton. Do not discard or misplace these, as they will be needed.
- B. After unpacking, immediately check the equipment for visible signs of shipping damage. If damage has occurred, contact the carrier and file the appropriate freight claims. Do not contact the factory. Shipping damage responsibility is between the carrier and the dealer.

#### If your equipment arrives damaged:

- 1. File claim for damages immediately, regardless of extent of damage.
- 2. <u>Visible loss or damage</u>: Be sure this is noted on the freight bill or express receipt and is signed by the person making the delivery.
- 3. <u>Concealed loss or damage</u>: If damage is unnoticed until equipment is unpacked, notify freight company or carrier immediately, and file a concealed damage claim. This should be done within fifteen (15) days of date of delivery. Be sure to retain container for inspection.

**NOTE:** Dean Does Not Assume Responsibility for Damage or Loss Incurred in Transit.

- C. Take off the filter support brace and remove the filter pan from the cabinet of the two left fryers.
- D. Casters are pre-installed on the fryer unit and the carton is furnished with three unloading ramps. Remove the braces from the front casters by taking out the securing bolts. Carefully roll the unit down the ramps from the front (cooking side).
- E. Remove all plastic skin from sides, front, and doors of the unit. Failure to do this will melt the plastic and make it very difficult to remove later.

# DECATHLON SERIES GAS FRYERS CHAPTER 3: INSTALLATION

#### 3.1 Installing the Fryer

- A. <u>Initial Installation</u>: If the fryer is installed with legs, do not push the fryer to adjust its position. Use a pallet or lift jack to lift the fryer slightly, then place the fryer where it is to be installed.
- B. <u>Relocating the fryer</u>: Remove all weight from each leg before moving a fryer with legs installed. Do not slide the fryer on the legs.
- C. If a leg becomes damaged, contact your service agent for immediate repair/replacement.

#### 3.2 Leveling the Fryer (Fryers equipped with legs only)

- A. **All Installations**: If the floor is uneven or has a definite slope, it is recommended to place the fryer on an even platform.
- B. Place a carpenter's spirit level across the top of the fryer and level the unit both front-to-back and side-to-side. If it is not level, the unit may not function efficiently, the oil may not drain properly for filtering and in a line-up it may not match adjacent units.
- C. Adjust to the high corner and measure with the spirit level. If floor is uneven, level the unit with the screw adjustments on each leg (ensure minimum clearances as discussed in Chapter 2 are maintained during the leveling procedure).
- D. **Re-leveling**: If the fryer is moved, re-level the fryer following the above instructions.
- E. The install must be reviewed at the time of installation to ensure it meets the intent of these instructions.



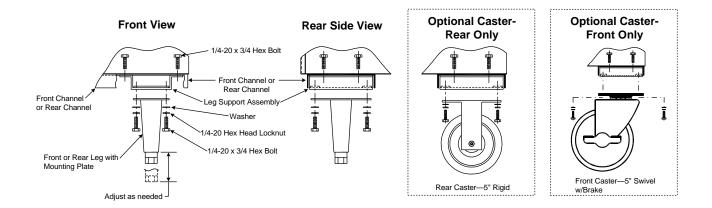
Fryers must be at room temperature, empty of oil, and if fitted with legs lifted during movement to avoid damage and possible bodily injury.

## **MARNING**

Hot shortening can cause severe burns. Avoid contact. Under all circumstances, oil must be removed from the fryer before attempting to move it to avoid oil spills, and the falls and severe burns that could occur. This fryer may tip and cause personal injury if not secured in a stationary position. See instruction manual.

#### 3.3 Installing Casters and Legs

- A. Install casters and/or legs near where the fryer is to be used, as neither is secure for long transit. The fryer cannot be curb mounted and must be equipped with either legs or casters provided.
- B. After unpacking, use a pallet or lift jack to raise the unit approximately 12 inches before installing the casters.
- C. Align the caster or leg base holes with the leg support assembly and insert bolt. Install the washers and nut hand-tight, and repeat for all four holes in caster/leg base assembly.
- D. Tighten the caster/leg against the leg support assembly by using appropriate tools. Ensure that all four bolts are evenly tightened.
- E. **For fryers with casters, there are no built-in leveling devices**. The floor where the fryers are installed must be level.



Caster/Leg Installation and Adjustment

## **MARNING**

Dean fryers equipped with legs are for permanent installations. Fryers fitted with legs must be lifted during movement to avoid damage and possible bodily injury. For a moveable or portable installation, Dean optional equipment casters must be used.

Questions? Call 1-800-551-8633

#### 3.4 Gas Categories

Dean Decathlon Series Gas Fryers have obtained CE markings for countries and gas categories listed in the table below:

Cou	ntries			Appliance Categories	Countries		Supply Pressures and Gas (mbar)		Appliance Categories
DE	Dalainm	G20	20/25	I2E (R) B	CD	Cuana	G20	20	II2H3P
BE	Belgium	G31	37	I3P	GR	Greece	G31	37 and 50	П2П3Р
DE	Commons	G20	20	I2E	TD.	Ireland	G20	20	HAHAD
DE	Germany	G31	50	I3P	IR		G31	37	II2H3P
DK	Denmark	G20	20	I2H	ΙΤ	Italy	G20	20	I2H
EC	Spain	G20	20	П2Н3Р	LU Luxe	T1	G20/G25	20/25	H2E2D
ES		G31	37 and 50			Luxembourg	G31	50	II2E3P
FR	France	G20/G25	20/25	II2ESI3P	EGIAD VII	The	G25	25	II2L3P
ΓK	France	G31	37 and 50		II2ESI3P NL	Netherlands	G31	50	112L3F
GB	Great Britain	G20	20	II2H3P	I2H3P PT Portugal	DT Dominal	G20	20	II2H3P
OD		G31	37			G31	37	1121131	

#### 3.5 Gas Connections

A. The gas supply (service) line must be the same size or greater than the fryer inlet line. This fryer is equipped with a 3/4" (19 mm) male inlet. The gas supply line must be sized to accommodate all the gas-fired equipment that may be connected to that gas supply. Consult your contractor, gas company, supplier, or other knowledgeable authorities.

	Recon	nmended Gas Supply Lin	e Sizes		
Gas Types	Gas Types Number of Fryers				
	1	2 to 3	4 or more (*)		
Natural Gas	3/4" (19 mm)	1" (25 mm)	1 1/4" (33 mm)		
Propane Gas	1/2" (13 mm)	3/4" (19 mm)	1" (25 mm)		

<sup>(\*)</sup> When exceeding 18 feet (6 meters) for a configuration of more than four fryers, it is necessary to provide a 1 1/4" (33 mm) rigid gas connection.



All connections must be sealed with a joint compound suitable for the gas being used, and all connections must be tested with a soapy solution before lighting any pilots.

#### 3.5 Gas Connections (cont.)

- B. <u>Rigid Connections</u>: Check any installer-supplied intake pipe(s) visually and clean threading chips, or any other foreign matter before installing into a service line. If the intake pipes are not clear of all foreign matter, the orifices will clog when gas pressure is applied. Seal pipe joints with a sealant resistive to LP gas. When using thread compound on gas piping, use very small amounts and only on male threads. Use a pipe thread compound that is not affected by the chemical action of LP gases. DO NOT apply thread compound to the first two pipe threads--doing so will cause clogging of the burner orifices and control valve.
- C. <u>Manual shut-off valve</u>: This gas service supplier-installed valve must be installed in the gas service line ahead of the fryers in the gas stream and in a position where it can be reached quickly in the event of an emergency.
- D. <u>Regulating Gas Pressure</u>: The fryer and shut-off valve must be disconnected from the gas supply during any pressure testing of the system.
  - 1. External gas regulators are not normally required on this fryer. A safety control valve protects the fryer against pressure fluctuations. If the incoming pressure is in excess of ½" PSI (3.45 kPa/35 mbar), a step-down regulator will be required.

#### **A** CAUTION

The fryer must be isolated from the gas supply piping system by closing its individual manual shut-off valve during any pressure testing of the gas supply piping system at pressures equal to or less than ½ PSI (3.45 kPa/35 mbar).

The fryer and its individual shut-off valve must be disconnected from the gas supply piping system during any pressure testing of the gas supply system at test pressures in excess of ½ PSI (3.45 kPa/35 mbar).

- E. <u>Manifold Pressure</u>: Your local service technician should check the manifold pressure with a manometer.
  - 1. Check the rating plate for manifold gas pressures. Natural gas units normally require 4" W.C., and propane units normally require 11" W.C. gas pressure.
  - 2. Double check the arrow forged into the bottom of the regulator body, which shows gas flow direction. It should point downstream towards the fryers. The air vent cap is also part of the regulator and should not be removed.
  - 3. If a vent line from the gas pressure regulator is used, it should be installed in accordance with local codes or in the absence of local codes, with the National Fuel Gas Code, ANSI Z223.1-(latest edition).

#### 3.5 Gas Connections (cont.)

#### **MARNING**

Use a diluted soap solution to find potentially dangerous gas leaks when making new connections.

- F. Regulators can be adjusted in the field, but it is recommended that they not be tampered with unless the part is known to be out of adjustment or serious pressure fluctuations are found to exist and can be solved no other way.
- G. Only qualified service personnel should make adjustments to the regulators.
- H. <u>Orifices</u>: The fryer can be configured to operate on any available gas. The correct safety control valve, appropriate gas orifices, and pilot burner are installed at the factory. While the valve can be adjusted in the field, only qualified service personnel should make any adjustments with the proper test equipment.

## **MARNING**

If gas odors are detected, the gas supply must be shut off at the main shut-off valve.

The local gas company or FASC should be contacted <u>immediately</u> to rectify the problem.

#### I. Flexible Couplings, Connectors and Casters:

1. If the fryer is to be installed with flexible couplings and/or quick-disconnect fittings, the installer must use a heavy-duty AGA design-certified commercial flexible connector of at least 3/4" NPT (with suitable strain reliefs), in compliance with the Standard for Connectors for Movable Gas Appliances, ANSI Z21.69-(latest edition) and Addenda Z21.69a-(latest edition). Quick disconnect devices must comply with the Standard for Quick-Disconnect Devices for Use with Gas Fuel, ANSI Z21.41-(latest edition).

#### **MARNING**

Do not attach accessories to this fryer unless fryer is secured from tipping. Personal injury may result.

- 2. The fryer must be restrained by means independent of the flexible coupling or connector in order to limit the movement of the fryer. Clips are located on the back panel of the fryer for the attachment of restraints.
- 3. If disconnection of the restraint is necessary, this restraint must be reconnected after the fryer has been returned to its originally installed position.

#### 3.5 Gas Connections (cont.)

- J. After hook-up, bleed the gas line of air to ensure that the pilot light will ignite quickly.
- K. CE Standards: If the unit is to be installed with flexible coupling, use a commercial flexible coupling certified as NF D 36123 (or other national standard) or a quick disconnect device certified NF D 36124 (or other national standard).

#### 3.6 Adjustments/Adaptation To Different Gases

- A. Proper operation of appliances requires operator to scrupulously inspect the following adjustments in terms of:
  - 1. Gas inputs and pressures.
  - 2. Voltage and polarities of electrical power supplies.
- B. Dean gas fryers are manufactured to use the type of gas and pressure specified on the rating plate. When changing to a different gas, **adaptation must be performed by qualified personnel**. Failure to use qualified personnel will void the Frymaster warranty.

#### 3.6.1 CE Specifications

#### 3.6.1.1 Gas Types and Specifications

MODEL	INPUT (kW)	GAS TYPE	ORIFICE MM (INCH)	ORIFICE PART NO.	QTY/ COLOR		PMENT SSURE	PRESSURE MBAR	PILOT ASSEMBLY
	(111)		Will (IIIOII)	TAKT NO.	OOLOR	MBAR	INCH WC	MDAIX	ACCEMBET
		G20	2.40(#42)	14-0067-10Blu	2/BLUE	10	4.0	20MBAR	14199-1CE
D20G	15	G25	2.40(#42)	14-0067-10Blu	2/BLUE	15	6.0	25MBAR	14199-1CE
		G31	1.51(#53)	14-0067-2Red	2/RED	27	10.8	37MBAR	14199-2CE
		G20	2.40(#42)	14-0067-10Blu	4/BLUE	10	4.0	20MBAR	14199-1CE
D50G	30	G25	2.40(#42)	14-0067-10Blu	4/BLUE	15	6.0	25MBAR	14199-1CE
		G31	1.51(#53)	14-0067-2Red	4/RED	27	10.8	37MBAR	14199-2CE
		G20	2.40(#42)	14-0067-10Blu	5/BLUE	10	4.0	20MBAR	14199-1CE
D60G	37.5	G25	2.40(#42)	14-0067-10Blu	5/BLUE	15	6.0	25MBAR	14199-1CE
		G31	1.51(#53)	14-0067-2Red	5/RED	27	10.8	37MBAR	14199-2CE
		G20	2.40(#42)	14-0067-10Blu	5/BLUE	10	4.0	20MBAR	14199-1CE
D80G	37.5	G25	2.40(#42)	14-0067-10Blu	5/BLUE	15	6.0	25MBAR	14199-1CE
		G31	1.51(#53)	14-0067-2Red	5/RED	27	10.8	37MBAR	14199-2CE

#### **3.6.1.2** Adjustments to Different Gas Types

Gases and Gas Supply Pressure*	G20 20 mbar	G25 25 mbar	G31 37/50 mbar
Orifice Diameter	2.40 mm	2.40 mm	1.51 mm
Burner Marking	"blue" marking	"blue" marking	"red" marking
Pilot Marking	TJ024	TJ024	TJ013 "red"
Gas pressure at the regulator (mbar)*	10	15	27

<u>NOTE</u>: Outlet gas pressure must be adjusted strictly within the above requirements 5 to 10 minutes after the appliance is operating.

#### 3.6.2 Gas Conversion Procedures

See page 3-8 for gas valve illustrations when performing the following conversions.

When converting from G20 to G25 gas, the following procedures apply:

- Equipment replacement is not required.
- ♦ Adjust orifice gas pressure by turning the gas valve adjustment screw (See Section 3.6.1.1 for various gas types and pressures).
- After adjustment, seal the screw.

When converting from G20 (or G25) gas to G31 propane (or vice-versa), the following procedures apply:

- ♦ Burner orifices and pilot **MUST** be replaced (See page 3-9 for required components).
- ♦ Adjust orifice gas pressure by turning the gas-valve adjustment screw (See Section 3.6.1.1 for various gas types and pressures).
- ♦ After adjustment, seal the screw.
- ♦ Affix new label "fryer equipped for: <gas family/# mbar>" to the rating plate. Remove any reference to the previously used gas from the rating plate.

When converting from G20 (20 mbar) to G25 (25 mbar), or vice-versa, or G31 (37 mbar) to G31 (50 mbar), the following procedures apply:

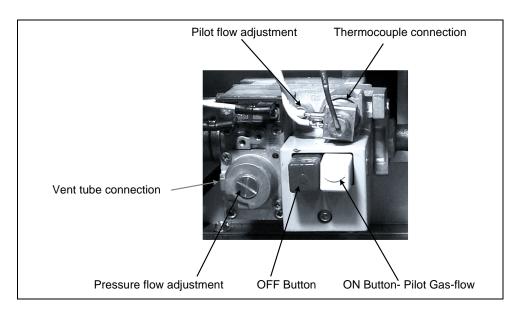
- Check pilot-adjustment and adjust as necessary.
- Other adjustments are not necessary.

<sup>\*</sup> For controls and adjustments, please refer to "gas valve" illustrations on page 3-8. (Pilot Flame Adjustment: Turn the pilot adjustment screw clockwise/counter-clockwise until the desired flame-volume is achieved).

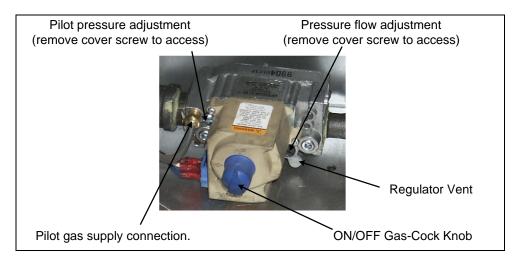
#### 3.6.2 Gas Conversion Procedures (cont.)

Conversion from one gas family to another (i.e. changing from natural gas to propane) requires special components. Obtain the necessary components using the cross-reference tables on page 3-9.

#### Conversions can only be executed by qualified, factory-authorized personnel.



CE Gas Valve



Non-CE Gas Valve

## 3.6.2 Gas Conversion Procedures (cont.)

Use the following component information to convert from natural gas to propane and vice-versa.

	Decathlon Series Natural Gas to Propane Conversion Components						
QTY	REF	DESCRIPTION					
1	TJ013	Pilot orifice					
5	14-0067-2Red	Burner orifice (diameter: 1.51 mm)					
1	Label	Appareil réglé pour: G31/37 Fryer equipped for: G31/37					

	Decathlon Series Propane to Natural Gas Conversion Components						
QTY	REF	DESCRIPTION					
1	TJ024	Pilot orifice					
5	14-0067-10Blu	Burner orifice (diameter: 2.40 mm)					
1	Label	Appareil réglé pour: G20/20 Fryer equipped for: G25/25					

#### 3.7 Electrical Connections

The fryer when installed must be electrically grounded in accordance with local codes, or in the absence of local codes, with the National Electrical Code, ANSI/NFPA 70-(latest edition).

#### **MARNING**

This fryer is equipped with a three-prong (grounding) plug for protection against shock hazard. It should be plugged directly into a properly grounded, three-prong receptacle. DO NOT CUT, REMOVE, OR OTHERWISE BYPASS THE GROUNDING PRONG ON THIS PLUG.

The rating plate and wiring diagram are located inside the front door. The fryer is equipped with a 120VAC single-phase 60-hertz system (Domestic), or 230VAC single-phase 50-hertz system (International/CE). Do not cut or remove the ground prong from the power cord plug. Do not attempt to use the fryer during a power outage.

# DECATHLON SERIES GAS FRYERS CHAPTER 4: FRYER OPERATIONS

#### 4.1 Initial Start-up

A. <u>Cleaning</u>: New units are wiped clean with solvents at the factory to remove any visible signs of dirt, oil, grease, etc. remaining from the manufacturing process, then coated lightly with oil. Before any food preparation, wash thoroughly with hot, soapy water to remove any film residue and dust or debris then rinse out and wipe dry. Also wash any accessories shipped with the unit. Close the drain-valve completely and remove the crumb screen covering the heating tubes. Make sure the screws holding the thermostat and high-limit control sensing bulbs into the vessel are tight.

#### **A** CAUTION

Do not bang fry baskets or other utensils on the fryer's joiner strip. The strip is present to seal the joint between the fry vessels. Banging fry baskets on the strip to dislodge shortening will distort the strip, adversely affecting its fit. It is designed for a fit tight and should only be removed for cleaning.

#### 4.1.1 Pilot Lighting Procedures, Standing Pilot Only

<u>Initial Pilot Light</u>: All Dean fryers are tested, adjusted and calibrated to sea level conditions before leaving the factory. Adjustments to assure proper operation of pilot may be necessary on installation to meet local conditions, low gas pressure, differences in altitude and variations in gas characteristics. These adjustments correct possible problems caused by rough handling or vibration during shipment, and are to be performed only by qualified service personnel. These adjustments are the responsibility of the customer and/or the dealer and are not covered by the Dean Industries warranty.

The inlet pipe at the lower rear of the fryer brings incoming gas to the pilot safety control valve, then to the pilot and main burners. The pilot is located high in the cabinet center, at the base of the fryer vessel.

Light the pilot as follows:

- 1. Turn off the manual shut-off valve on the incoming service line.
- 2. Turn the operating thermostat or the computer off.
- Depress the pilot gas cock dial on the combination control valve and turn to "OFF".
- 4. Wait approximately 5 minutes for accumulated gas to disperse.

#### 4.1.1 Pilot Lighting Procedures, Standing Pilot Only (cont.)

Note: Inspect high-limit thermostat/temperature probe location prior to filling fry vessel with water or oil. Ensure that connecting hardware is intact and bulbs are properly attached.

- 5. Fill the fry vessel with oil or water to the bottom OIL LEVEL line scribed on the vessel back. Ensure that heating tubes are covered in liquid prior to engaging burners.
- 6. Open the manual shut-off valve on the incoming service line.
- 7. Apply lighted match or taper to the pilot burner head.
- 8. Turn the gas cock dial on the control valve to "Pilot", then depress and hold the dial until the pilot stays lit (approximately 1 minute).
- 9. If the pilot fails to stay lit, depress the dial and re-light the pilot, depressing the dial longer before releasing.
- 10. When the pilot stays lit, turn the gas cock dial to "ON".
- 11. Turn the operating thermostat, computer or controller on, then ensure the main burners ignite from the pilot.

#### MARNING.

When checking for burner ignition or performance, do not get too close to the burners. Slow ignition can cause possible flashback, increasing the potential for facial and body burns.

#### 4.1.2 Pilot Lighting Procedures, Electronic Ignition Systems

#### **⚠** WARNING

Never use a match or taper to light pilot on this ignition system.

- 1. Turn gas "ON".
- 2. Turn electric power "ON" with the appropriate rocker switch or controller/computer.
- 3. The electric module will turn on the pilot gas supply and the electric ignition spark. The spark will ignite the pilot gas. The presence of the pilot flame is then proved by the electric flame sensor, which in turn allows the main gas supply to be turned on. The operating thermostat or computer/controller controls the fryer after ignition is proved.

#### 4.1.2 Pilot Lighting Procedures, Electronic Ignition Systems (cont.)

#### **MARNING**

In the event of prolonged power failure, the ignition module will shut down and lock out the system. Turn the unit power "OFF" and them back "ON" after power has been re-established.

4. If the pilot flame fails, the ignition module will shut down and lock out the system. To restart, turn the electric power "OFF", wait approximately 5 minutes for the system to recycle itself, then turn the power "ON" again. Repeat Steps 1-3.

#### 4.2 Boil-Out Procedure

#### 4.2.1 Thermostat-Equipped Fryers

- A. Pour cleaning solution into the fry vessel and add water to the bottom OIL LEVEL line scribed in the back of the fry vessel.
- B. Set the operating thermostat dial/temperature controller to 104°C (219°F), just above that of boiling water.
- C. The main burner will ignite.
- D. Reset the temperature controller to 93°C (199.4°F).
- E. The burners should shut-off just as the water starts to boil.
- F. The burners will heat the boil-out solution to a simmer. Simmer the solution for approximately 45 minutes. Wearing protective gloves, scrub the sides of the fry vessel and the tubes with the L-shaped teflon brush, being careful not to disturb the temperature sensing probes and the high-limit thermostat.
- G. Do not allow the water level to decrease below the bottom OIL LEVEL line in fry vessel during boil-out operation.
- H. After boil-out is complete, turn the thermostat dial to "OFF" and drain the solution from the fry vessel. Place a metal pan or bucket under the drain port to collect the water from the fry vessel.
- I. Close the drain, add fresh water (without boil-out solution) and wash all surfaces of the fry vessel. Drain again.
- J. Refill the fry vessel with fresh water and vinegar to neutralize any residual boil-out solution. Wash all surfaces of the fry vessel. Drain completely and wipe down all surfaces of the fry vessel to completely eliminate water from the vessel.

#### 4.2.2 Filtration/Boil-Mode Option-Equipped Fryers

- A. Pour cleaning solution into the fry vessel and add water to the bottom OIL LEVEL line scribed in the back of the fry vessel.
- B. Turn fryer power-switch "ON". Then press the fryer reset-switch.

# **A** CAUTION

If the pilot and main burner go out, the fryer(s) MUST be left completely shut down at least 5 minutes before lighting.

C. Turn the boil-out switch "ON". The main burner will ignite. **DO NOT LEAVE THE FRYER UNATTENDED DURING THE BOIL-OUT PROCEDURE.** 

# **A** CAUTION

Do not leave fryer unattended. The boil-out solution may foam and overflow if fryer is left unattended. Press ON/OFF switch to the "OFF" position to control this condition.

- D. The burners will heat the boil-out solution to a simmer. Simmer the solution for approximately 45 minutes. Wearing protective gloves, scrub the sides of the fry vessel and the tubes with the L-shaped teflon brush, being careful not to disturb the temperature sensing probes and the high-limit thermostat.
- E. Do not allow the water level to decrease below the bottom OIL LEVEL line in fry vessel during boil-out operation.

## **A** CAUTION

Water or boil-out solution MUST not be allowed to drain into the filter pan or filter system. Irreversible damage will result if water is allowed into the system.

- F. After boil-out is complete, turn the boil-out and fryer switches to "OFF" and drain the solution from the fry vessel. Place a metal pan or bucket under the drain port to collect the water from the fry vessel. **DO NOT DRAIN THE WATER INTO THE FILTER PAN.** The filter pump is not designed for water operation, and will be irreparably damaged.
- G. Close the drain, add fresh water (without boil-out solution) and wash all surfaces of the fry vessel. Drain again.
- H. Refill the fry vessel with fresh water and vinegar to neutralize any residual boil-out solution. Wash all surfaces of the fry vessel. Drain completely and wipe down all surfaces of the fry vessel to completely eliminate water from the vessel.

#### 4.2.2 Filtration/Boil-Mode Option-Equipped Fryers (cont.)

#### **A** CAUTION

All drops of water MUST be removed from fry vessel before filling with cooking oil. Do not turn fryer on to dry...extensive damage will occur to fry vessel and burner tubes, and ALL warranties will be voided.

**NOTE:** For a fresh start and prolonged fry vessel life, it is recommended that the boil-out procedure be performed each time the oil/shortening is changed.

#### 4.2.3 Computer-Equipped Fryers

- A. Before switching the fryer(s) "ON", close the fry-vessel drain-valve(s). Fill the empty fry vessel with a mixture of cold water and boil-out solution. Follow instructions when mixing.
- B. To program computer for Boil Feature, press either switch.
- C. Press the ✓ switch. **Cod** will appear in the left display.
- D. Enter (1653) in that sequence. The right display will read **boil**. The temperature is automatically set for 195°F (91°C). The fryer will attain this temperature and remain there until either (195°C) switch is pressed, which cancels the boil-out mode. In high-altitude locations, constantly monitor the fryer for over-boil conditions. If over-boil occurs, turn off fryer immediately, allow to cool, and re-enter boil-out mode to continue the boil-out operation.

## 4.3 Final Preparation

#### **↑** WARNING

NEVER set a complete block of solid shortening on top of heating tubes. To do so will damage the heating tubes and fry vessel, and void the warranty.

#### 4.3.1 Filling Fryer with Cooking Oil/Shortening—Operating Thermostat/Thermatron

- A. When using a liquid shortening (cooking oil), fill the fryer to the bottom OIL LEVEL line scribed into the back of the fryer vessel.
- B. When using a solid shortening, first melt it in a suitable container, or cut it into small pieces and pack it below the heat tubes, between the tubes and on top of the tubes, leaving no air spaces around the tubes. Do not disturb or bend the sensing bulbs.

- C. If equipped with a Melt Cycle Control, turn the melt cycle switch "ON" to melt the shortening. The burners will cycle on and off until shortening has melted.
- D. If the fryer does not have a Melt Cycle Control, turn the burners "ON" for about 10 seconds, "OFF" for a minute, etc., until the shortening is melted. If you see smoke coming from the shortening while melting this way, shorten the "ON" cycle and lengthen the "OFF" cycle. Smoke indicates potential scorching of the shortening, which will shorten its useful life.
- E. Before starting operation, turn the operating thermostat to the probable working temperature; wait for the temperature to stabilize then check with a high-quality immersion thermometer.

#### 4.3.2 Filling Fryer with Cooking Oil/Shortening—Computer

- A. Fill the fryer as described in Filling Fryer with Cooking Oil/Shortening—Operating Thermostat/Thermatron section.
- B. For solid shortening, follow procedure in Section 4.3.1, Step B. Press the computer on/off switch to "ON". The burners will initially operate in the MELT CYCLE mode until the shortening reaches 180°F. It will then automatically switch to normal operation.
- C. When the fry vessel is filled and the shortening is melted, carefully replace the crumb screen over the heat tubes. Wear oil-proof insulated gloves to avoid the potential for burn injury when replacing crumb screen.
- D. Before starting operation, program the computer to the probable working temperature and wait for the temperature to stabilize.

#### **⚠** WARNING

Do not go near the area directly over the flue outlet while the fryer is operating.

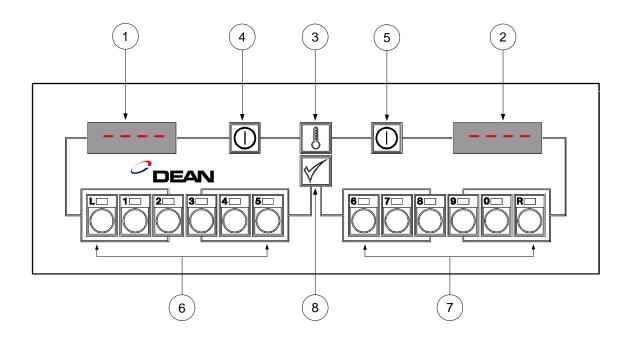
Always wear oil-proof, insulated gloves when working with the fryer filled with hot oil.

Always drain hot oil into a metal container. Hot oil can melt plastic buckets and crack glass containers.

See Filtration Manual for filtering procedures (where applicable).

# DECATHLON SERIES GAS FRYERS CHAPTER 5: COMPU-FRY/THERMATRON INSTRUCTIONS

## 5.1 Operating Fryers with Dean Compu-Fry Computers



ITEM	DESCRIPTION
1	Lighted Display left display of various functions and operations.
2	Lighted Display right display of various functions and operations.
3	Program Lock and Temperature Check Switch locks program in computer and/or displays frypot temperature when depressed. (Oldstyle computers will have this switch:
4/5	Power Switches— either switch turns power "ON" or "OFF". (Oldstyle computers will have this switch:
6/7	Product and Coding Switches – provides access to computer and programming functions. (Old-style computers will have these switches:
8	Programming Switch used when reprogramming the computer memory. (Old-style computers will have this switch:

## **MARNING**

Before turning on computer, ensure the fryer is filled with cooking oil/shortening or water. NEVER allow water to enter the Filtration System (if applicable).

#### 5.1 Operating Fryers with Dean Compu-Fry Computers (cont.)

#### 5.1.1 Equipment Setup and Shutdown Procedures

#### **Setup**



Fill the frypot to the bottom OIL LEVEL line with vegetable oil before pressing the ON/OFF switch ① to the "ON" position. Failure to do so could damage the frypot.

- 1. Fill the frypot with vegetable oil to the <u>bottom</u> OIL LEVEL line located on the rear of the frypot. This will allow for oil expansion as heat is applied. Do not fill cold oil any higher than the bottom line; overflow may occur as heat expands the oil. If solid shortening is used, pack solid shortening into the cool-zone of the frypot. Continue to pack shortening in frypot to the <u>bottom</u> OIL LEVEL line.
- 2. Ensure that the power cord(s) is/are plugged into the appropriate receptacle(s). Verify that the face of the plug is flush with the outlet plate, with no portion of the prongs visible.
- 3. Ensure that the vegetable oil level is at the *top* OIL LEVEL line when the vegetable oil *is at its programmed cooking temperature*. It may be necessary to add vegetable oil to bring the level up to the proper mark, *after the oil has reached the programmed cooking temperature*. If solid shortening is used, the MELT cycle **MUST** be used to melt the shortening. It may be necessary to add solid shortening to bring the level up to the proper mark after the packed shortening has melted. DO NOT DISABLE OR CANCEL THE MELT CYCLE UNTIL ALL SOLID SHORTENING HAS MELTED.

#### Shutdown

- 1. Press the ON/OFF switch to the "OFF" position (the display will show "OFF").
- 2. Filter vegetable oil (if applicable) and clean fryers. See Chapter 6.
- 3. Place the frypot covers on frypots.

#### **Operating the Fryer**

- A. Turn the computer on by pressing the witch.
  - 1. One of the following displays will appear:
    - a. [Y[L], indicating that the burners are operating in the melt-cycle mode. Fryer will remain in the melt-cycle mode until it reaches 180°F (82°C) or is canceled manually.
    - b. HI, indicating that the pot temperature is  $21^{\circ}F$  ( $12^{\circ}C$ ) or higher than the setpoint.
    - c. Lo, indicating that the pot temperature is 21°F (12°C) or lower than the setpoint.

#### 5.1.1 Equipment Setup and Shutdown Procedures (cont.)

- d. " - - " indicating that the fryer temperature is in the cooking range. NOTE: For best results, do not cook product until the display reads " - - ".
- e. HELP, indicates a heating problem.
- f. HOT, indicates that the pot temperature is more than 410°F (210°C) [395°F (202°C) for CE (European Community) fryers].
- g. Prob, indicates that the computer has detected a problem in the temperature measuring circuits, including probe.

NOTE: "." decimal point between digits 1 and 2 in either display area indicates that the burners are on.

B. Melt-Cycle Cancel Feature (built-in computers only).

# CAUTION Do not cancel the melt cycle mode if using solid shortening.

The computer will display  $\[ \] \] \[ \] \] \[ \] \]$  during melt-cycle operation. To cancel melt cycle on a full pot, depress the "R" button  $\[ \] \]$ . To cancel the melt cycle on a split pot, use the "L" button  $\[ \] \]$  for left-side pot and the "R" button  $\[ \] \]$  for right-side pot.  $\[ \] \] \[\] \[ \] \[\]$ 

- C. Cook-cycle operation is initiated by pressing the product switch:
  - 1. The basket lift (on fryers so equipped) will lower the product into the cooking oil/shortening.
  - 2. The display will indicate the programmed cook time and begin countdown.
  - 3. If shake time is programmed, you will be notified to shake the product "X" seconds after the cook cycle begins (X= amount of time programmed). An alarm will sound and the display will read 5 H- and the product number selected. If no shake time is programmed 5 H- will not appear during the cook cycle.
  - 4. At the end of cooking cycle, an alarm will sound; [ ] [ will be displayed and the associated product switch indicator will flash. To cancel the cook alarm, press the flashing product switch.
  - 5. At this time, the hold time will be displayed (if programmed greater than 0) and countdown will begin. When the hold time counter reaches 0, an alarm will sound. Hd- and the product number selected is displayed. The hold alarm is canceled by pushing the switch. If display is in use, hold time will count down invisibly until display is free.

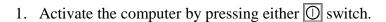
#### 5.1.2 Checking Temperature

A.	Check the cooking oil/shortening temperature at any time by pressing the	switch	once.
	Check the setpoint by pressing the switch twice.		

- B. During the idle periods, when the fryer is on but not in use, " - - " should appear on both displays on a single frypot computer. " - - " will appear on the display of the side that is turned on in a split-vat computer. If not, check actual temperature and setpoint.
- C. If you suspect a defective probe, check the cooking oil/shortening temperature with a thermometer. Verify that the computer readout is reasonably close to your measured reading.

NOTE: The electronic circuitry can be affected adversely by current fluctuations and electrical storms. If for no apparent reason the computer does not function or program properly, reset the computer by unplugging the power cord and plugging it back in.

#### 5.2 Programming The Dean Compu-Fry Computer



- 2. To enter the program mode, first press the switch. Lod will appear in the left display. If you have pressed this switch in error and do not wish to program, press the switch again. Note: The computer will flash B U 5 Y if cooking is in progress.
- 3. Press (1650) in that sequence to enter the program mode.
- 4. **5** P-r (Setpoint) will appear in the left display. This is for setting the cooking temperature. The temperature previously selected will be displayed in the right display. Enter new temperature. Press the switch to lock in temperature setting. If the setting is correct, press the switch to cancel the selection.
- 5. **SELP** (Select Product) will appear in the left display. Press the product button to be programmed.
- 6. **SENS** will appear in the left display. The sensitivity number previously selected will be displayed in the right display. Enter the new desired sensitivity number, the range is 1 to 9. Enter "0" for no sensitivity. Press the switch to lock in the setting.

Sensitivity adjusts computer-cooking time to compensate for the drop in cooking oil/shortening temperature when a basket of product is placed into the fryer. Sensitivity decreases or increases cooking time to counterbalance variances in product density, basket-load size, and initial temperature. A proper sensitivity setting will ensure a high quality product. For example: 4 ounces of fries can be programmed to cook to the same quality as 2 pounds. A good initial setting is 4 or 5. Some experimenting with the range of 1 to 9 may be required to achieve optimum quality.

# **5.2 Programming The Dean Compu-Fry Computer (cont.)**

1.	right display. If that time is correct, press the switch. If you wish to change the time, enter the desired time in minutes and seconds. (The new time will be displayed in the left display.) Press the switch to lock in the setting.
8.	<b>5</b> H - now appears in the left display. The previous shake time (if any) will appear in the right display. If a product requires shaking during the cooking process, set the shake time by pressing the number of minutes to cook before shaking. Press the switch to lock in the time. If no shake time is required, press "0" and press the switch. Example: Total cook time 3:00 minutes, shake after cooking 1:00 minute.
	At the end of 1:00 minute, a beeper will sound and the product button indicator will flash for three seconds.
9.	<b>H</b> ♂ will now appear in the left display. Set the time to hold the cooked product from 13 seconds to 60 minutes. Press the ✓ switch. If you do not wish to use the hold time, enter "0" and press the ✓ switch.
10	. S E L P will appear in the left display. If you desire to program more products, return to Step 5. If no more programming is required, lock in program by pressing the \[ \begin{array}{c} \ext{\left} \] switch.
11	" $SP-r$ " (Setpoint) will appear in the left display. This is for setting the cooking temperature. The temperature previously selected will be displayed in the right display. Enter new temperature. Press the $\boxed{\mathscr{C}}$ switch to lock in temperature setting. If you do not wish to change the setting, press the $\boxed{\mathscr{C}}$ switch.
12	"SELP" (Select Product) will appear in the left display. Press the product button to be programmed.
13	SENS will appear in the left display. The sensitivity number previously selected will be displayed in the right display. Enter the new desired sensitivity number, the range is 1 to 9. Enter "0" for no sensitivity. Press the switch to lock in the setting.
	Sensitivity adjusts computer-cooking time to compensate for the drop in cooking oil/shortening temperature when a basket of product is placed into the fryer. Sensitivity decreases or increases cooking time to counterbalance variances in product density, basket-load size, and initial temperature. A proper sensitivity setting will ensure a high quality product. For example: 4 ounces of french fries can be programmed to cook to the same quality as 2 pounds. A good initial setting is 4 or 5. Some experimenting with the range of 1 to 9 may be required to achieve optimum quality.
14	. [ ] [ will now appear in the left display. A previously entered cook-time will appear in the right display. If that time is correct, press the witch. If you wish to change the time, enter

the desired time in minutes and seconds. (The new time will be displayed in the left display.)

Press the switch to lock in the setting.

#### 5.2 Programming The Dean Compu-Fry Computer (cont.)

15.	. $5 H$ - now appears in the left display. The previous shake time (if any) will appear in the	right
	display. If a product requires shaking during the cooking process, set the shake time by pro	
	the number of minutes to cook before shaking. Press the witch to lock in the time.	If no
	shake time is required, press "0" and press the grain switch. Example: Total cook time	3:00
	minutes, shake after cooking 1:00 minute.	

- 16. At the end of 1:00 minute, a beeper will sound and the product button indicator will flash for 3 seconds.
- 17. Hd will now appear in the left display. Set the time to hold the cooked product from 13 seconds to 60 minutes. Press the wistch. If you do not wish to use the hold time, enter "0" and press the switch.
- 18. 5 E L P will appear in the left display. If you desire to program more products, return to Step 5. If no more programming is required, lock in program by pressing the switch.

#### 5.2.1 Boil Feature

#### **A** CAUTION

Do not drain water or boil-out solution into the filtration system (if applicable). Irreparable damage will result and void the warranty.

1. Before switching the fryer "ON", close the frypot drain valve. Fill empty frypot with mixture of cold water and detergent. Follow detergent instructions when mixing.

**NOTE:** Boil Mode will not turn on both sides of computer. Each side will have to be turned on separately.

- 2. To program computer for Boil Feature, press either switch.
- 3. Press the switch. **LodE** will appear in the left display.
- 4. Enter (16 5 3) in that sequence. The right display will read **boil**. The temperature is automatically set for 195°F (91°C). The fryer will attain this temperature and remain there until either (19 switch is pressed, which cancels the boil-out mode. In high-altitude locations, constantly monitor the fryer for over-boil conditions. If over-boil occurs, turn off fryer immediately, allow to cool, and re-enter boil-out mode to continue the boil-out operation.

#### SEE CHAPTER 4.2 FOR ADDITIONAL BOIL-OUT PROCEDURES.

5.2	2.2 Fryer Recovery Time Check
1.	To check recovery time, press the $\boxed{\mathscr{C}}$ switch. $\boxed{CodE}$ will appear in the left display.
2.	Enter (1 6 5 2) in that sequence. The recovery time will appear in both displays for 5 seconds.
5.2	2.3 Temperature Selection—Fahrenheit to Celsius (Not Applicable to Old-Style Compu-Fry Computers)
1.	To change the computer temperature from Fahrenheit to Celsius or Celsius to Fahrenheit, press either  switch.
2.	Press the switch. LodE will appear in the left display.
3.	Enter (1 6 5 8) in that sequence. The computer will automatically convert the temperature from Fahrenheit to Celsius or Celsius to Fahrenheit.
4.	Press the switch to display the temperature in the newly selected mode.
5.2	2.4 Constant Oil Temperature Display Mode (Not Applicable to Old-Style Compu- Fry Computers)
1.	To program constant temperature display, press the  switch.
2.	Press the switch. LodE will appear in the left display.
3.	Enter (1 6 5 L) in that sequence. The cooking oil/shortening temperature will

display constantly in the right display on a full-pot and in both displays on a split-pot.

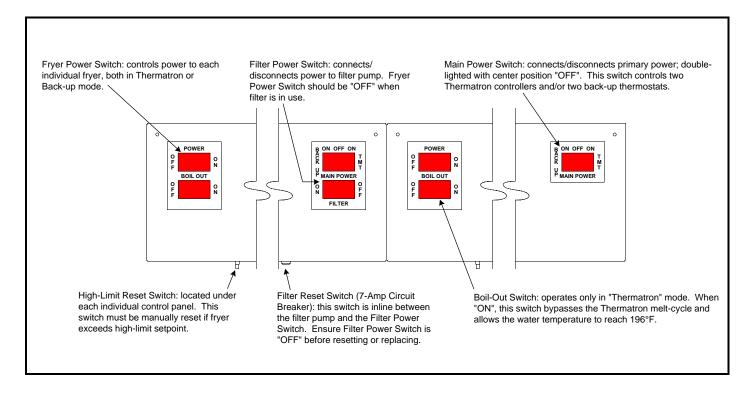
be taking place.

Step 3.

NOTE: During the product cooking process, the cooking time will not be displayed but timing will

4. To remove the constant oil-temperature display and display the cooking time, repeat Step 2 and

#### 5.3 Operating Fryers with Thermatron Controllers



Many Decathlon fryers use a solid-state temperature controller, or Thermatron® controller instead of a computer or basic thermostat. A Thermatron® system incorporates a temperature-control circuit board, a potentiometer, and a temperature probe. This system is more accurate and more reliable than a standard thermostat, and less expensive than a computer controller. Thermatron systems are operated with the following controls:



Thermatron Temperature Controller

MAIN POWER SWITCH – connects/disconnects primary power; double-lighted with center position "OFF". One main switch controls two Thermatron controllers and/or two back-up thermostats. When the Main Power Switch is in the center position, power is removed from the two fryers controlled by the Thermatron controllers or back-up thermostats. When the Main Power Switch pressed to the right, power is supplied to the Thermatron of each fryer. When pressed to the left, power is supplied to the back-up thermostat of each fryer. The back-up thermostat should be left in the "OFF" position when not in use (Newer fryers may not have the backup control option).

#### **5.3 Operating Fryers with Thermatron Controllers (cont.)**

**INDIVIDUAL FRYER POWER SWITCH** – this switch controls power to the individual fryer, whether the fryer is in the Thermatron mode or the back-up mode. When the power switch is in the "ON" position, the indicator light will be lighted when calling for heat. The power switch only removes power from the temperature control circuit (Thermatron and Back-Up Thermostat). The power switch should be in the "OFF" position during filtering.

**BOIL-OUT SWITCH** – **this only operates when in the Thermatron mode**. When the Boil-Out switch is "ON", it will bypass the Thermatron Melt Cycle, and allow the water temperature to reach approximately 196°F.

FILTER POWER SWITCH (Optional) – controls power to the filter pump. Individual Power Switch should be in "OFF" position when in use.

**HIGH-LIMIT RESET** – this reset button is located under each individual control panel, and must be manually reset if the fryer exceeds high-limit setpoint.

**FILTER RESET SWITCH** (7 Amp Circuit Breaker) – the breaker is in line between the filter switch and the pump. Turn filter power switch "OFF" prior to replacing.

**5 AMP FUSE** – each two fryer circuits are protected by a 5 amp fuse located under the  $2^{nd}$  and  $4^{th}$  control panel.

# DECATHLON SERIES GAS FRYERS CHAPTER 6: PREVENTATIVE MAINTENANCE

#### 6.1 General

Any equipment works better and lasts longer when maintained properly and kept clean. Cooking equipment is no exception. Your Decathlon fryer should be kept clean during the working day, and thoroughly cleaned at the end of each day. Below are recommendations for daily, weekly and periodic preventative maintenance.

#### 6.1.1 Daily

- A. Remove and wash all removable parts.
- B. Clean all exterior surfaces of the cabinet. <u>Do not use</u> cleaners, steel wool, or any other abrasive material on stainless steel.
- C. Filter the cooking oil and replace if necessary. The oil should be filtered more frequently when under heavy use.

#### 6.1.2 Weekly

- A. Completely drain the oil from the fryer into a suitable container for disposal. Do not use a glass or plastic container.
- B. Clean the fry-vessel by following boil-out procedures in Chapter 4-2.



Never allow water to boil down and expose the heating tubes. Fry vessel damage will result.

#### 6.1.3 Periodic

The fryer should be inspected and adjusted periodically by qualified service personnel as part of a regular kitchen maintenance program.

#### 6.1.4 Stainless Steel Care

#### **MARNING**

DO NOT let water splash into the tank of hot oil. It will splatter and can cause severe burns.

All stainless steel fryer cabinet parts should be wiped regularly with hot, soapy water during the day, and with a liquid cleanser designed for stainless steel at the end of each day.

- A. <u>Do not use</u> steel wool, abrasive cloths, cleansers or powders.
- B. <u>Do not use</u> a metal knife, spatula or any other metal tool to scrape stainless steel! Scratches are almost impossible to remove.
- C. If it is necessary to scrape the stainless steel to remove any encrusted materials, soak the area first to soften the deposit, then use a wood or nylon scraper only.

# DECATHLON SERIES GAS FRYERS CHAPTER 7: TROUBLESHOOTING

#### 7.1 General

#### **A** CAUTION

This appliance may have more than one power supply connection point. Disconnect all power cords before servicing.

The problems and possible solutions covered are those most commonly encountered.

To troubleshoot, perform the test set-up at the beginning of each condition. Follow each step in sequence.

#### **⚠** WARNING

Inspection, testing, and repair of gas or electrical equipment should be performed by qualified personnel.

**Use EXTREME CARE when testing Live Electrical Circuits.** 

#### 7.2 Pilot Burner Malfunction

- A. Pilot will not ignite; no evidence of gas at pilot burner.
  - 1. Check that gas valve is open and gas is present at the gas valve.
  - 2. Check pilot burner orifice for dirt or lint.
  - 3. Remove pilot burner gas-supply line and check for contamination; blow out if necessary, then reinstall.
- B. Pilot burner ignites but will not remain lit when gas valve manual knob is released.
  - 1. Check that thermocouple lead is properly screwed into thermocouple connection bushing on gas valve.
  - 2. Remove end of thermocouple lead from thermocouple connection bushing and clean with fine sandpaper or emery cloth.
  - 3. Pilot flame may be too high or too low. Adjust pilot flame adjustment screw so that pilot flame extends about ¾-inch (19-mm) above the top of the pilot burner.
  - 4. Check all connections for cleanliness and security.

#### 7.2 Pilot Burner Malfunction (cont.)

- C. Pilot flame of proper size, but is unstable. Flame wavers and does not envelop the thermocouple completely at all times.
  - 1. Check for drafts that might be caused by air conditioning equipment or make-up air apparatus. Turn air-moving equipment off and recheck the pilot.

### **A** CAUTION

Do not attempt to turn the adjustment past the stops or the controller will be damaged.

#### 7.3 Main Burner Malfunctions

- A. Main burner will not come "ON"; gas not detected at main burner.
  - 1. Check that the gas valve is open.
  - 2. Check that the pilot is ignited and is operating properly.
  - 3. Check the high limit switch for continuity.
  - 4. The combination gas valve may be defective; replace if necessary.
- B. Main burner flames are small and appear lazy; shortening does not come up to temperature quickly.
  - 1. Check gas pressure at the pressure tap of the gas valve. Use dial type or standard water-type U-gauge manometer. With burner in operation, the pressure should be 4" WC (10 mbar) for natural gas, and 11" WC (27.5 mbar) for propane.
  - 2. If not, remove the pressure regulator adjustment cover. Use screwdriver to turn the adjusting screw for proper pressure. Replace cover, re-check pressure and re-install pressure tap plug.
- C. Signs of excessive temperature; shortening scorches and quickly becomes discolored.
  - 1. Check operating thermostat. May be out of adjustment or calibration. Recalibrate if necessary.
  - 2. Check gas pressure as outlined above.
  - 3. Shortening used is of inferior quality and/or shortening has been used too long. Replace shortening.
  - 4. Ensure vessel is clean when refilling with new shortening.

#### 7.3 Main Burner Malfunctions (cont.)

- D. Fryer will not reach the temperature setting and/or runs erratically.
  - 1. Incorrect location of sensor probe or defective temperature sensor.
  - 2. Loose wiring/wire connection
- E. Fryer shortening temperature cannot be controlled; fryer runs at high-limit temperature.
  - 1. Defective operating thermostat or temperature probe.
  - 2. Call Service Technician.

#### 7.4 Thermatron Calibration

The Thermatron controller maintains a specific oil/shortening temperature through a sensing probe mounted in the fry vessel. If the actual temperature of the cooking oil varies from the controller dial setting, loosen the knob setscrew and rotate the knob until it agrees with that of the actual oil temperature. When obtaining actual oil temperature, ensure that the thermometer is inserted within one-inch of the vessel-mounted probe. If proper calibration cannot be achieved, contact your service agent for repair.



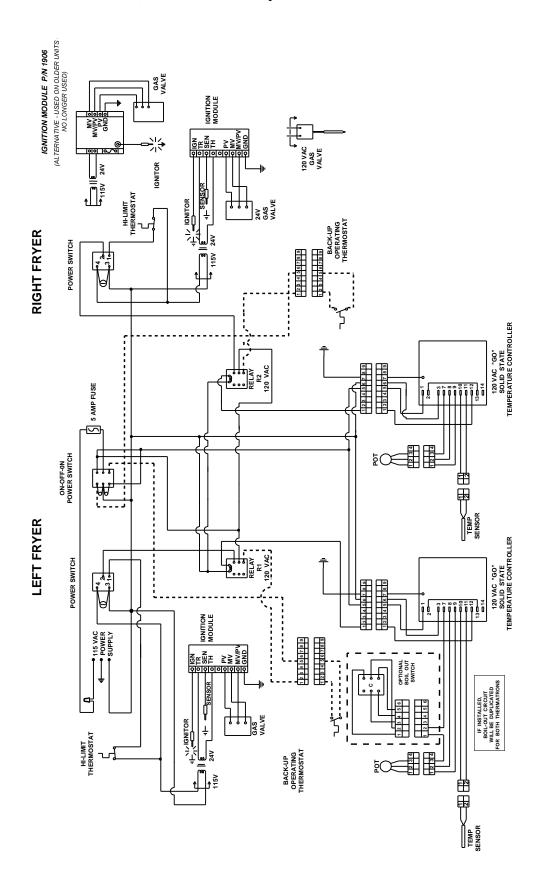
Control Knob Setscrew (counter-set in knob)



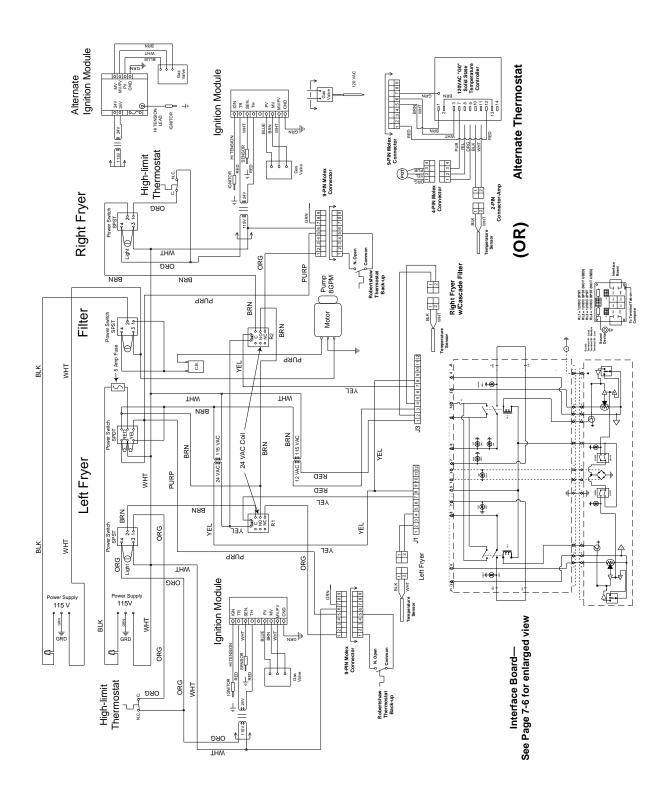
Thermatron Probe

### 7.4 Wiring Diagrams

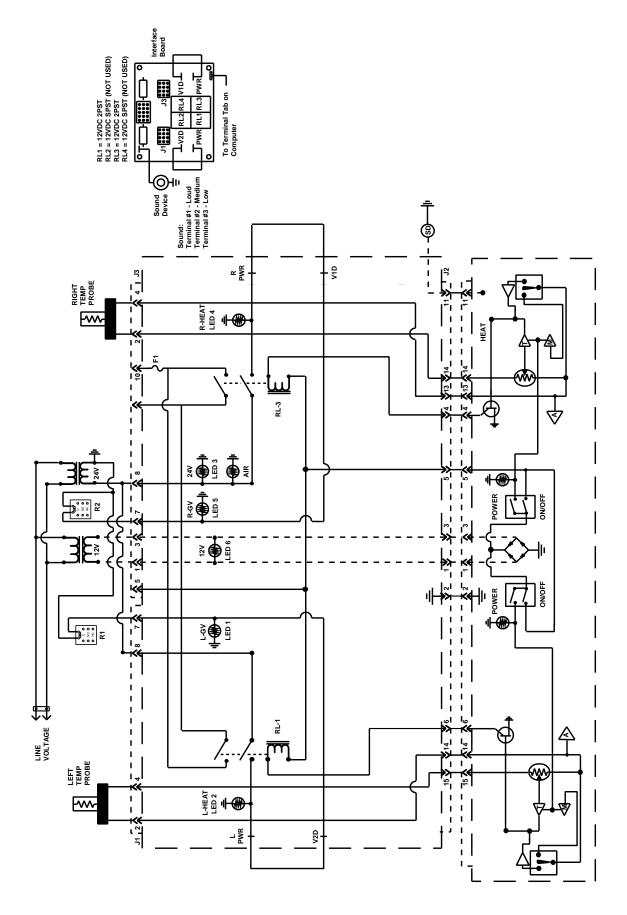
#### 7.4.1 Decathlon Dual-vat, Thermatron Only



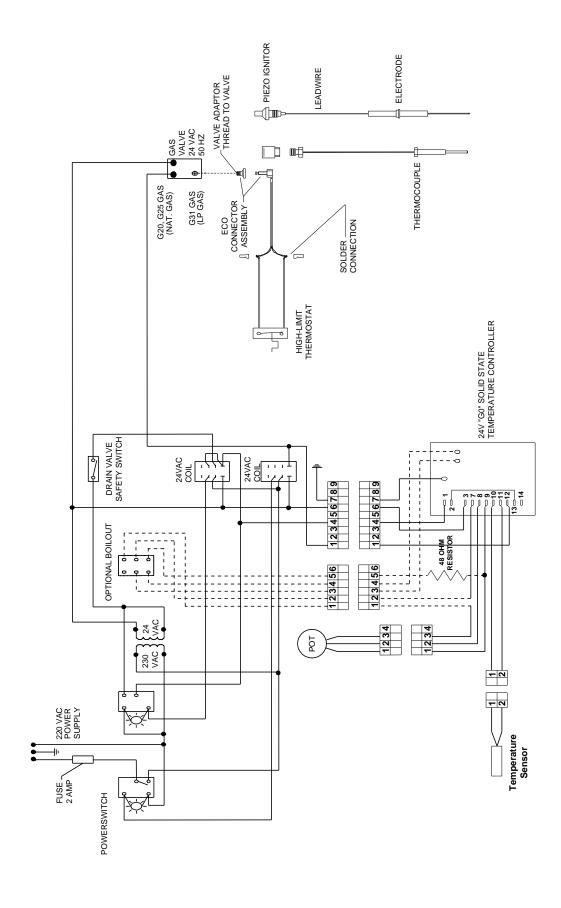
#### 7.4.2 Decathlon Dual-vat, Computer Option



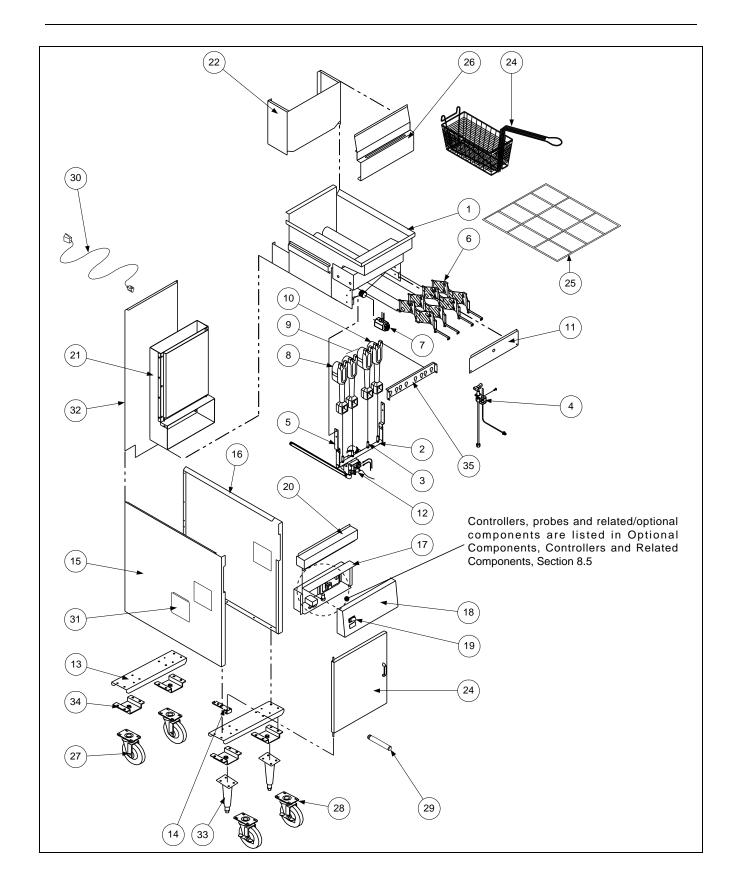
### 7.4.3 Decathlon Interface Board (Enlarged View)



#### 7.4.4 Decathlon D-50G and D-60G—CE Only



### DECATHLON SERIES GAS FRYERS CHAPTER 8: PARTS LIST



# 8.1 Decathlon D-20 Primary Components

ITEM	PART #	COMPONENT
1	07002-3	Vessel Weld Assembly M/S
*	07002-4	Vessel Weld Assembly S/S
*	07148-3	Vessel Weld Assembly M/S (CE ONLY)
*	07148-4	Vessel Weld Assembly S/S (CE ONLY)
2	07008	Gas Manifold (Weld Assembly)
3	14-0067-6	Orifice, Natural Gas
*	14-0067-7	Orifice, LP Gas
*	14-0067-10Blu	Orifice, Nat. Gas G(20, 25) Blue (CE ONLY)
*	14-0067-2Red	Orifice, LP Gas G(31, 37, 50) Red (CE ONLY)
4	07018-1	Pilot Assembly For Natural Gas
*	07018-2	Pilot Assembly For LP Gas
*	14199-1CE	Pilot Assembly, Nat. Gas G(20, 25) (CE ONLY)
*	14199-2CE	Pilot Assembly, LP Gas G(31, 37,50) (CE ONLY)
5	14-0402	Manifold Support Bracket
6	14154	Diffuser Assembly
7	2066	Drain Valve
8	14-0001-1	Burner, Left Side
9	N/A	Burner, Center
10	14-0001-3	Burner, Right Side
11	07-0044	Heat Shield
12	2254	Gas Valve, Natural Gas, Electronic Ignition 24 VAC
*	2729	Gas Valve, LP Gas, Electronic Ignition 24 VAC
*	1143	Gas Valve, Natural Gas 120 VAC
*	1910	Gas Valve, LP Gas 120 VAC
*	2651	Gas Valve, Natural Gas G(20, 25) 24 VAC (CE ONLY)
*	2652	Gas Valve, LP Gas G(31, 37, 50) 24 VAC ( <b>CE ONLY</b> )
13	07-0213	Channel
14	24-0350	Lower Hinge Bracket
15	44-0981-1	Side Panel, Left Side
16	44-0981-2	Side Panel, Right Side
17	07-0224	Wireway Control Panel
18	07-0132-2	Control Panel
19	2025	Switch, Rocker, Yellow Lens, 125/250VAC
*	2674	Switch, Rocker, Green Lens, 125/250 VAC (CE ONLY)
20	07-0060	Canopy
21	07001	Flue Box Assembly
22	07-0004	Vessel Upper Rear
23	07141	Door Assembly
24	2608	Fry Basket
25	07011	Grid Assembly
26	07-0212	Basket Hanger
27	1943	Caster, 5-inch w/o Brake
28	1942	Caster, 5-inch with Brake
29	44-1363	Extended Drain Nipple
30	24159	Power Cord

## 8.1 Decathlon D-20 Primary Components (cont.)

ITEM	PART #	COMPONENT
31	11-0140-2	Cover, Outlet Duct
32	N/A	Rear Panel Structural Back
*	07-0139	Upper Structural Back
*	07-0140	Lower Structural Back
33	1731-2	Leg (Black)
34	14169	Leg Support Assembly
35	07-0006	Burner Mounting Bracket

## 8.2 Decathlon D-50 Primary Components

ITEM	PART #	COMPONENT
1	14907-1	Vessel Weld Assembly M/S
*	14907-2	Vessel Weld Assembly S/S
*	14948-1	Vessel Weld Assembly M/S (CE ONLY)
*	14948-2	Vessel Weld Assembly S/S (CE ONLY)
2	14130	Gas Manifold (Weld Assembly)
3	14-0067-13	Orifice, Natural Gas
*	14-0067-2	Orifice, LP Gas
*	14-0067-10Blu	Orifice, Nat. Gas G(20, 25) Blue (CE ONLY)
*	14-0067-2Red	Orifice, LP Gas G(31, 37, 50) Red (CE ONLY)
4	14199-1	Pilot Assembly For Natural Gas
*	14199-2	Pilot Assembly For LP Gas
*	14199-1CE	Pilot Assembly, Nat. Gas G(20, 25) (CE ONLY)
*	14199-2CE	Pilot Assembly, LP Gas G(31, 37,50) (CE ONLY)
5	14-0402	Manifold Support Bracket
6	14778	Diffuser Assembly
7	2066	Drain Valve
8	14-0001-1	Burner, Left Side
9	14-0001-2	Burner, Center
10	14-0001-3	Burner, Right Side
11	14-0590	Heat Shield
12	2254	Gas Valve, Natural Gas, Electronic Ignition 24 VAC
*	2729	Gas Valve, LP Gas, Electronic Ignition 24 VAC
*	1143	Gas Valve, Natural Gas 120 VAC
*	1910	Gas Valve, LP Gas 120 VAC
*	2651	Gas Valve, Natural Gas G(20, 25) 24 VAC (CE ONLY)
*	2652	Gas Valve, LP Gas G(31, 37, 50) 24 VAC ( <b>CE ONLY</b> )
13	36-0012	Channel
14	24-0350	Lower Hinge Bracket
15	50-0041-1	Side Panel, Left Side
16	50-0041-2	Side Panel, Right Side
17	50-0001-1	Wireway Control Panel

## 8.2 Decathlon D-50 Primary Components (cont.)

ITEM	PART #	COMPONENT
18	50-0132	Control Panel
19	2025	Switch, Rocker, Yellow Lens, 125/250VAC
*	2674	Switch, Rocker, Green Lens, 125/250 VAC (CE ONLY)
20	50-0127-1	Canopy
21	12157	Flue Box Assembly
22	36005-2	Vessel Upper Rear
23	50005	Door Assembly
24	2608	Fry Basket
25	14-0179	Grid Assembly
26	36-0026-2	Basket Hanger
27	1943	Caster, 5-inch w/o Brake
28	1942	Caster, 5-inch with Brake
29	44-1363	Extended Drain Nipple
30	24159	Power Cord
31	11-0140-2	Cover, Outlet Duct
32	50-0050	Rear Panel Structural Back
*	N/A	Upper Structural Back
*	N/A	Lower Structural Back
33	1731-2	Leg (Black)
34	12085	Leg Support Assembly
35	14-0585	Burner Mounting Bracket

## 8.3 Decathlon D-60 Primary Components

ITEM	PART #	COMPONENT
1	60043-1	Vessel Weld Assembly M/S
*	60043-2	Vessel Weld Assembly S/S
*	60050-1	Vessel Weld Assembly M/S (CE ONLY)
*	60050-2	Vessel Weld Assembly S/S (CE ONLY)
2	18131	Gas Manifold (Weld Assembly)
3	14-0067-1	Orifice, Natural Gas
*	14-0067-2	Orifice, LP Gas
*	14-0067-10Blu	Orifice, Nat. Gas G(20, 25) Blue (CE ONLY)
*	14-0067-2Red	Orifice, LP Gas G(31, 37, 50) Red (CE ONLY)
4	14199-1	Pilot Assembly For Natural Gas
*	14199-2	Pilot Assembly For LP Gas
*	14199-1CE	Pilot Assembly, Nat. Gas G(20, 25) (CE ONLY)
*	14199-2CE	Pilot Assembly, LP Gas G(31, 37,50) (CE ONLY)
5	14-0402	Manifold Support Bracket
6	18063-1	Diffuser Assembly
7	2066	Drain Valve
8	14-0001-1	Burner, Left Side

# 8.3 Decathlon D-60 Primary Components (cont.)

ITEM	PART #	COMPONENT
9	14-0001-2	Burner, Center
10	14-0001-3	Burner, Right Side
11	60-0075	Heat Shield
12	2254	Gas Valve, Natural Gas, Electronic Ignition 24 VAC
*	2729	Gas Valve, LP Gas, Electronic Ignition 24 VAC
*	1143	Gas Valve, Natural Gas 120 VAC
*	1910	Gas Valve, LP Gas 120 VAC
*	2651	Gas Valve, Natural Gas G(20, 25) 24 VAC (CE ONLY)
*	2652	Gas Valve, LP Gas G(31, 37, 50) 24 VAC ( <b>CE ONLY</b> )
13	60-0007-1	Channel
14	24-0350	Lower Hinge Bracket
15	60-0021-1	Side Panel, Left Side
16	60-0021-2	Side Panel, Right Side
17	60-0001-1	Wireway Control Panel
18	60-0005-2	Control Panel
19	2025	Switch, Rocker, Yellow Lens, 125/250VAC
*	2674	Switch, Rocker, Green Lens, 125/250 VAC (CE ONLY)
20	60-0006-1	Canopy
21	18065	Flue Box Assembly
22	60044-2	Vessel Upper Rear
23	60005	Door Assembly
24	2609	Fry Basket
25	18012-SC	Grid Assembly
26	18-0067	Basket Hanger
27	1943	Caster, 5-inch w/o Brake
28	1942	Caster, 5-inch with Brake
29	44-1363	Extended Drain Nipple
30	24159	Power Cord
31	11-0140-2	Cover, Outlet Duct
32	N/A	Rear Panel Structural Back
*	60-0050	Upper Structural Back
*	18-0023-1	Lower Structural Back
33	1731-2	Leg (Black)
34	12085	Leg Support Assembly
35	18-0096	Burner Mounting Bracket

# 8.4 Decathlon D-80 Primary Components

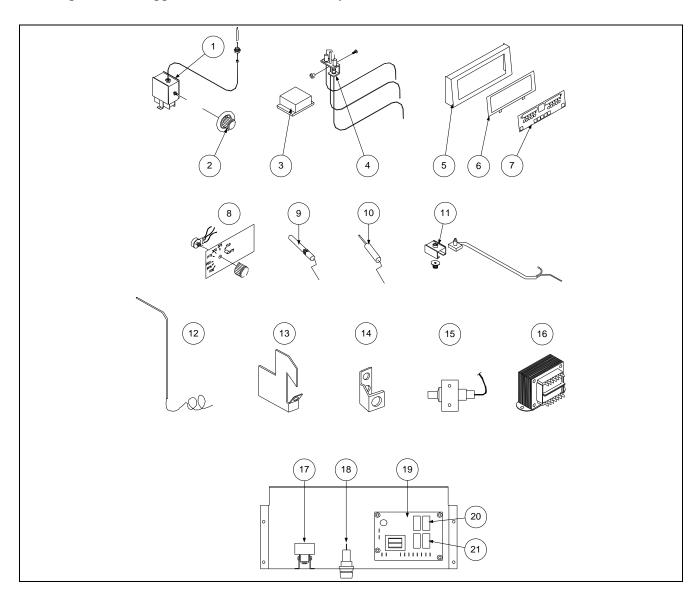
ITEM	PART #	COMPONENT
1	80018-1	Vessel Weld Assembly M/S
*	80018-2	Vessel Weld Assembly S/S
*	20092-1	Vessel Weld Assembly M/S (CE ONLY)
*	20092-2	Vessel Weld Assembly S/S (CE ONLY)
2	18131	Gas Manifold (Weld Assembly)
3	14-0067-4	Orifice, Natural Gas
*	14-0067-5	Orifice, LP Gas
*	14-0067-10Blu	Orifice, Nat. Gas G(20, 25) Blue (CE ONLY)
*	14-0067-2Red	Orifice, LP Gas G(31, 37, 50) Red (CE ONLY)
4	14199-1	Pilot Assembly For Natural Gas
*	14199-2	Pilot Assembly For LP Gas
*	14199-1CE	Pilot Assembly, Nat. Gas G(20, 25) (CE ONLY)
*	14199-2CE	Pilot Assembly, LP Gas G(31, 37,50) (CE ONLY)
5	14-0402	Manifold Support Bracket
6	20010-1	Diffuser Assembly
7	2066	Drain Valve
8	14-0001-1	Burner, Left Side
9	14-0001-2	Burner, Center
10	14-0001-3	Burner, Right Side
11	80-0069	Heat Shield
12	2254	Gas Valve, Natural Gas, Electronic Ignition 24 VAC
*	2729	Gas Valve, LP Gas, Electronic Ignition 24 VAC
*	1143	Gas Valve, Natural Gas 120 VAC
*	1910	Gas Valve, LP Gas 120 VAC
*	2651	Gas Valve, Natural Gas G(20, 25) 24 VAC (CE ONLY)
*	2652	Gas Valve, LP Gas G(31, 37, 50) 24 VAC ( <b>CE ONLY</b> )
13	20-0121	Channel
14	24-0350	Lower Hinge Bracket
15	80-0041-1	Side Panel, Left Side
16	80-0041-2	Side Panel, Right Side
17	80-0001-1	Wireway Control Panel
18	80-0005-2	Control Panel
19	2025	Switch, Rocker, Yellow Lens, 125/250VAC
*	2674	Switch, Rocker, Green Lens, 125/250 VAC (CE ONLY)
20	80-0006-1	Canopy
21	20053	Flue Box Assembly
22	80020-2	Vessel Upper Rear
23	80005-1	Door Assembly
24	2609	Fry Basket
25	20000-SC	Grid Assembly
26	18-0067	Basket Hanger
27	1943	Caster, 5-inch w/o Brake
28	1942	Caster, 5-inch with Brake
29	44-1363	Extended Drain Nipple
30	24159	Power Cord

### 8.4 Decathlon D-80 Primary Components (cont.)

ITEM	PART #	COMPONENT
31	11-0140-2	Cover, Outlet Duct
32	80-0050	Rear Panel Structural Back
*	N/A	Upper Structural Back
*	N/A	Lower Structural Back
33	1731-2	Leg (Black)
34	12085	Leg Support Assembly
35	18-0072	Burner Mounting Bracket

# 8.5 Optional Components, Controllers and Related Components (CE and Domestic)\*

\* Components are applicable to all Decathlon Fryers covered in this manual unless otherwise noted.



# 8.5 Decathlon Component Options (CE and Domestic, cont.)

ITEM	PART #	COMPONENT
1	2557	Thermostat, Sunne
2	1205	Knob, Thermostat (Domestic)
*	1205-1	Knob, Thermostat (CE ONLY)
3	2167	Spark Module (Domestic and CE)
4	44907-1	Pilot Assembly For Natural Gas
*	44907-2	Pilot Assembly For LP Gas
*	14199-1CE	Pilot Assembly, Nat. Gas G(20,25) (CE ONLY)
*	14199-2CE	Pilot Assembly, LP Gas G(31,37,50) (CE ONLY)
5	50-0004	Control Panel, <b>D-20</b>
*	50-0004	Control Panel, <b>D-50</b>
*	60-0004-2	Control Panel, <b>D-60</b>
*	20-0044-1	Control Panel, <b>D-80</b>
6	12148	Bezel Assembly, Control Panel
7	2444	Computer, Dean
8	14702	"G0" Face Plate/Potentiometer/PC Board Assembly, 120 VAC
*	18-0133	Face Plate, Thermatron
*	18142	Potentiometer, Thermatron
*	1543	Knob, Control- Thermatron
9	2560	Electrode
10	2654	Thermocouple
11	2650	ECO Connector Assembly
12	14707	Probe Assembly, Temperature-Thermatron ("G0")
*	12147	Probe Assembly (RTD), Temperature, Dean Computer
13	12-0400	Thermocouple Pilot Bracket
14	2723	Thermopile Bracket
15	227158	Piezo Ignitor
*	44-1128	Piezo Bracket
16	1905	Transformer Honeywell 120/24 VAC
*	2518	Transformer 120/12 VAC
*	2137	Transformer 120/24 VAC
*	2658	Transformer, Dual CE (CE ONLY)
	(807-1999)	
17	2687	Thermostat, High-limit
18	1330	Fuse Holder
*	2747	Fuse Holder, Slot-head—Safety (CE ONLY)
*	1331	Fuse 2A Slow Blow
19	2445	Interface Board, Dean Computer Only
*	2442	"G0" P.C. Board 24 VAC
*	14701-2	"G0" P.C. Board 120 VAC
*	2337-1	"G0" P.C. Board 208/240 VAC
20	2517	Relay 12 VDC 1PDT
21	2138	Relay 24 VAC 4PDT
* Not Illustrated	d	



Dean, 8700 Line Avenue, Shreveport, Louisiana 71135